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## ABSTRACT OF THE DISCLOSURE

A rotary electric machine of alternating current type configured to be connected directly to a distribution or transmission network includes at least one electric winding. The winding has at least one electric conductor, a first layer with semiconducting properties surrounding the conductor, a solid insulating layer surrounding the first layer and a second layer with semiconducting properties surrounding the insulating layer. A brushless excitation system, switchable between positive and negative excitation is also arranged for excitation of the machine.